

REMARKS

The Official Action of February 6, 2003, and the prior art relied upon therein have been carefully reviewed. The claims in the application are now claims 1-13, and these claims define patentable subject matter warranting their allowance. Accordingly, applicant respectfully requests favorable reconsideration and allowance.

Acknowledgement by the PTO of the receipt of applicant's papers filed under Section 119 is noted.

Claim 1 has been amended above to better particularly point out and distinctly claim applicant's invention. In addition, a series of new claims¹ 5-13 have been added based on the more detailed disclosures in applicant's specification including those in the second and third paragraphs on page 8, the top paragraph on page 9, the second paragraph on page 10, the examples as tabulated on page 15, on the text of example 1 at pages 11 and 12, and on the embodiment shown in Figs 2 and 4 and discussed at pages 5-7 of the specification.

The new claims are patentable for the same reasons

¹ The new claims adopt the same claim structure as claims 1-4. This claim structure has not been criticized in the Office Action either under §112 or as not defining the invention, and accordingly applicant is relying thereon that such claim structure is deemed acceptable by the PTO and serves to define the invention.

as claims 1-4 as pointed out below, and also because, in at least some cases, the dependent portions thereof define additional subject matter which is not shown or made obvious in or by the cited and applied prior art.

Claims 1-4 have been rejected as obvious under §103 from "applicant's admission of prior art" in view of Kojima et al, Japanese publication 55-041940 (Kojima) and "Plasma (Ion) Nitriding", an article in the name of O'Brien et al (O'Brien). Although applicant appreciates the thoroughness of the examination, applicant nevertheless respectfully traverses this rejection.

First, applicant files herewith a partial translation of Kojima which provides a more complete picture of the disclosure of this document. From this, it will be seen that Kojima is really directed to what is indicated to be an improved sulphurizing nitride method, i.e. an improvement over one which uses a salt bath. As the examiner correctly notes, Kojima discloses and teaches the use of NH₃, rather than N₂. In addition, Kojima does not teach what voltage to apply. Significantly, the so-treated member produced by Kojima has a thickness of only 15 µm (see example 1 at about the middle of page 4 of the attached translation of Kojima), whereas the thickness of the protective layer claimed is a minimum 30µm, twice as great as that of Kojima.

The rejection is predicated on the assumption that there was prior art recognition in the field of air motors that the prior art nitridation surfaces provided on these devices were insufficient or inadequate, but there is no evidence in support of such an assumption. Applicant's specification states in the middle paragraph on page 2 that such prior art "nitridation layer tend[s] to be[come] defoliated" during usage, wherein "the working life of the vane-surrounding members is extremely short and the productivity is poor...."

It is a well accepted principle of patent law that the nonobviousness of an invention can reside in the recognition of a problem. Thus, even if the proposed combination of the so-called admitted prior art and Kojima were obvious if the problem were known to exist (not admitted), applicant respectfully submits that recognition of the problem, and particularly the problem of defoliation, constitutes nonobviousness.

Moreover, even if the problem were known, applicant does not see that Kojima teaches that the problem of defoliation can be solved by the Kojima method. Thus, if it had been previously known that defoliation was a problem, applicant still does not see how the person of ordinary skill in the art would be inclined to adopt the teachings of Kojima for use in conjunction with a member of an air motor.

Accordingly, applicant submits that the present invention defines nonobvious subject matter.

Returning to Kojima's use of NH₃ rather than N₂, the rejection relies on O'Brien. However, O'Brien relates to iron-nitriding, not for that upon which Kojima is relied. In other words, the rejection relies on Kojima for the substitution of nitrosulphurization in place of nitridation or nitriding. With respect, it is illogical to say that it would have been obvious to the person of only ordinary skill in the art to first substitute nitrosulphurization for nitridation (presumably because the latter is in some way superior to the former), and then go back to nitridation to change something which is taught as needed for the nitrosulphurization process which was substituted for the nitridation process. This is beyond the level of ordinary skill in the art, and only becomes obvious upon a consideration of applicant's specification.

Lastly, at least insofar as main claim 1 is concerned, applicant wishes to respectfully return to the thickness of the nitrosulphurized layer of the member of the present invention which is at least twice as thick as taught by Kojima, and indeed up to ten times as thick. As the thickness of 15 μm is actually disclosed in Kojima, it cannot be said that the applicant's claims which call for thicker layer in the present invention is inherent from adopting

Kojima for application to the so-called admitted prior art (assuming momentarily, *ad arguendo*, that such a substitution were obvious, not admitted). Therefore, even if the combination as proposed were obvious, it would still not reach claim 1 because of an insufficient thickness of the nitrosulphurization layer.

Because all the other claims depend from and thus incorporate the subject matter of claim 1, they are patentable for the same reasons as claim 1. While applicant need not argue the patentability of the dependent portions of each of the other claims, applicant believes that at least in some cases the examiner will recognize that some of the newly added dependent claims recite additional features which are not made obvious by the prior art.

Withdrawal of the rejection is respectfully requested.

Favorable reconsideration and allowance are earnestly solicited.

Respectfully submitted,

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